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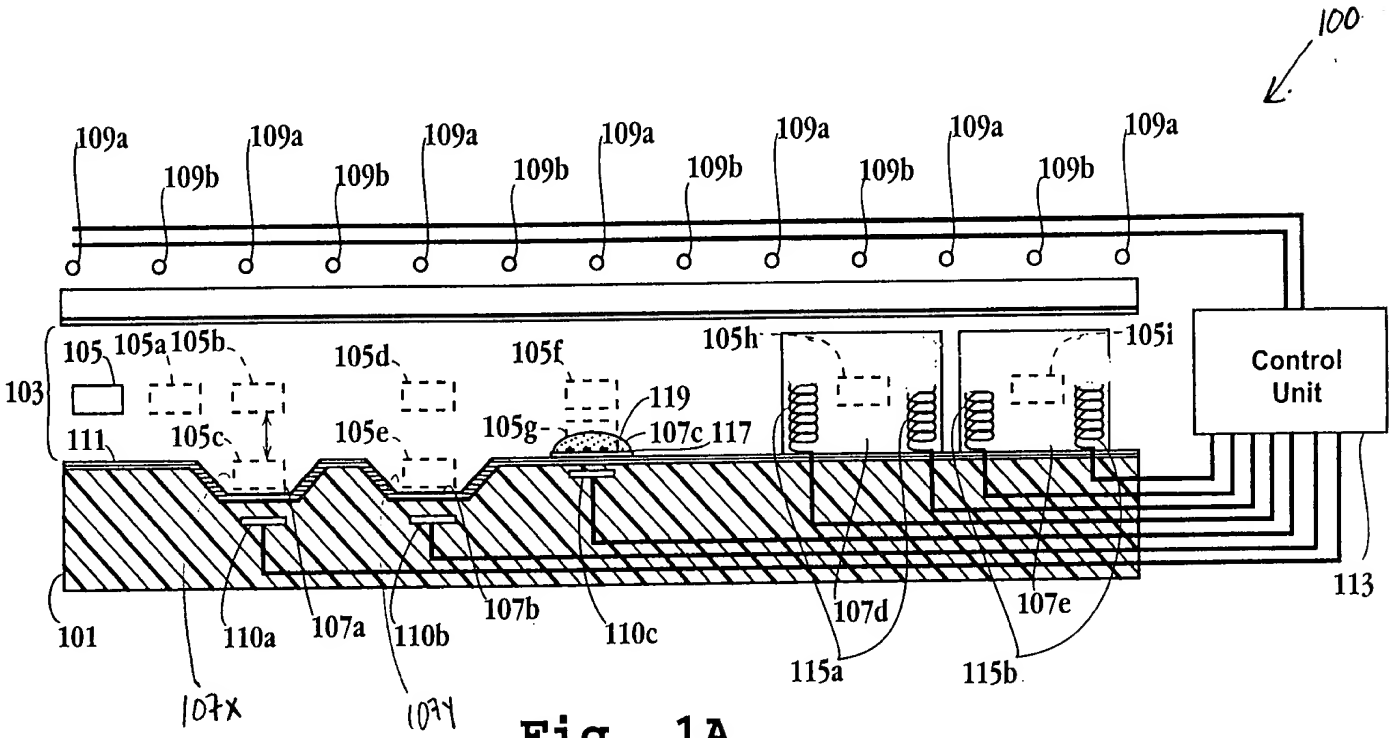
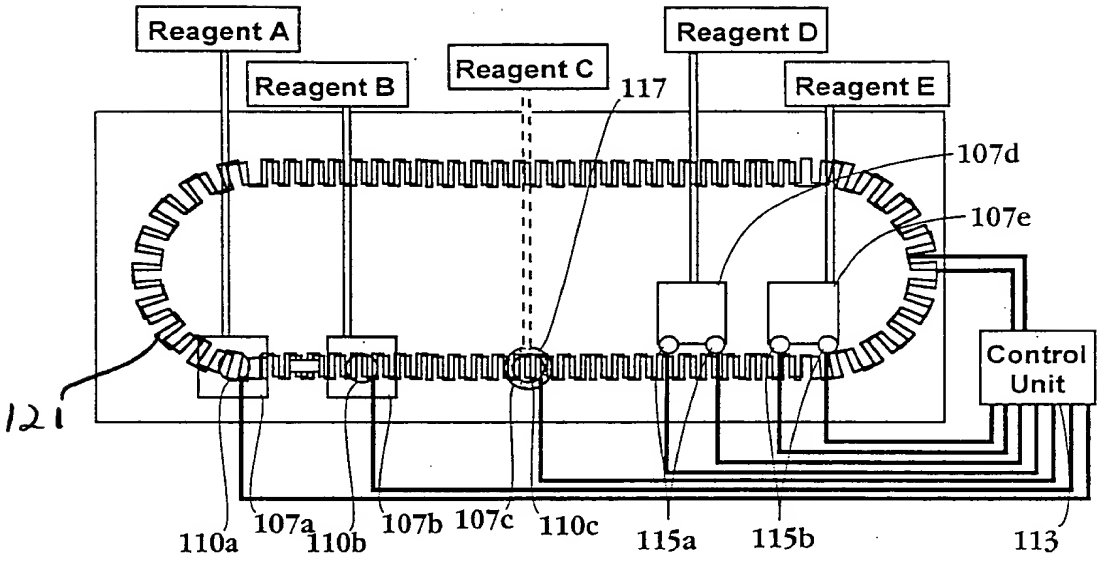


Fig. 1A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Reagent B
Reagent C
Reagent D
Reagent E
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107e
Control Unit
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107a
110b
107b
107c
110c
115a
115b
113

Fig. 1B

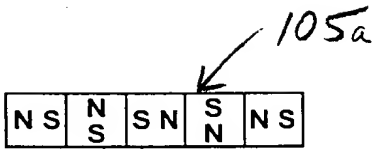


Fig. 2A

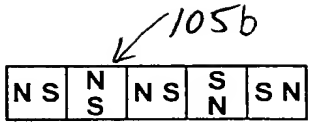


Fig. 2B

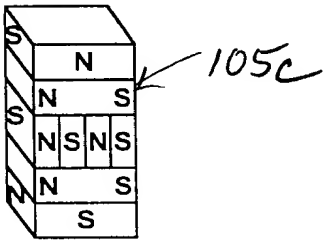


Fig. 3A

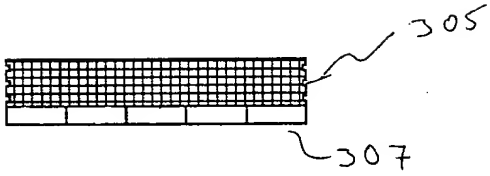


Fig. 3B

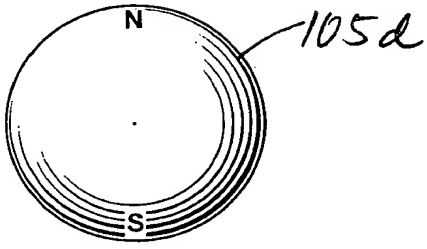
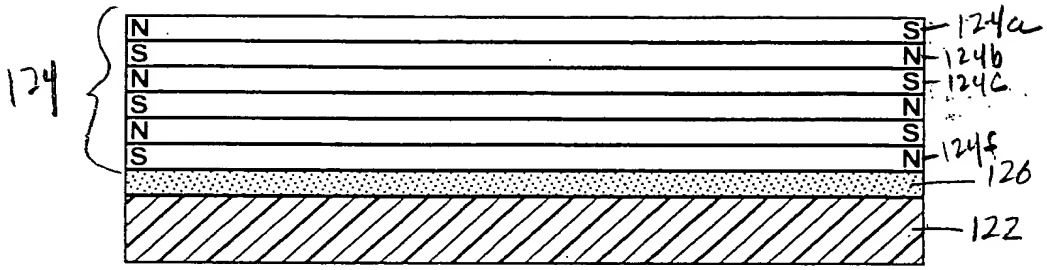


Fig. 4



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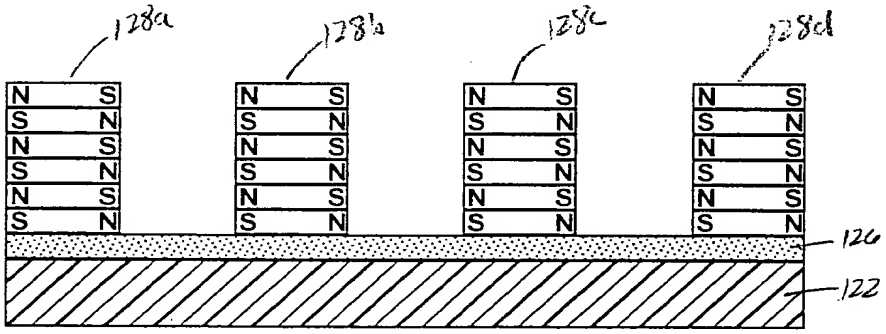
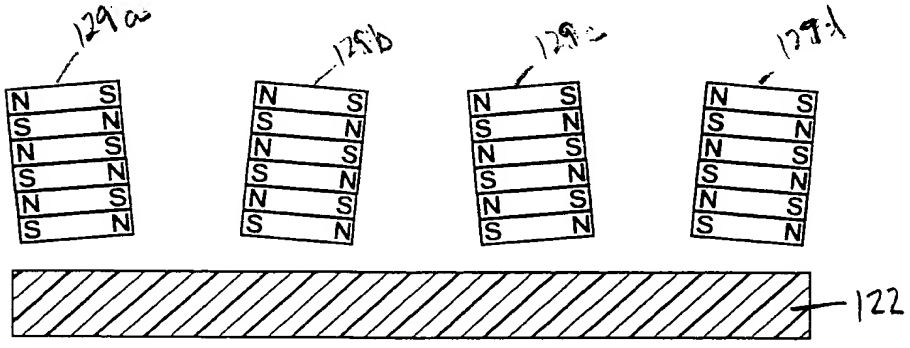


Fig. 5B



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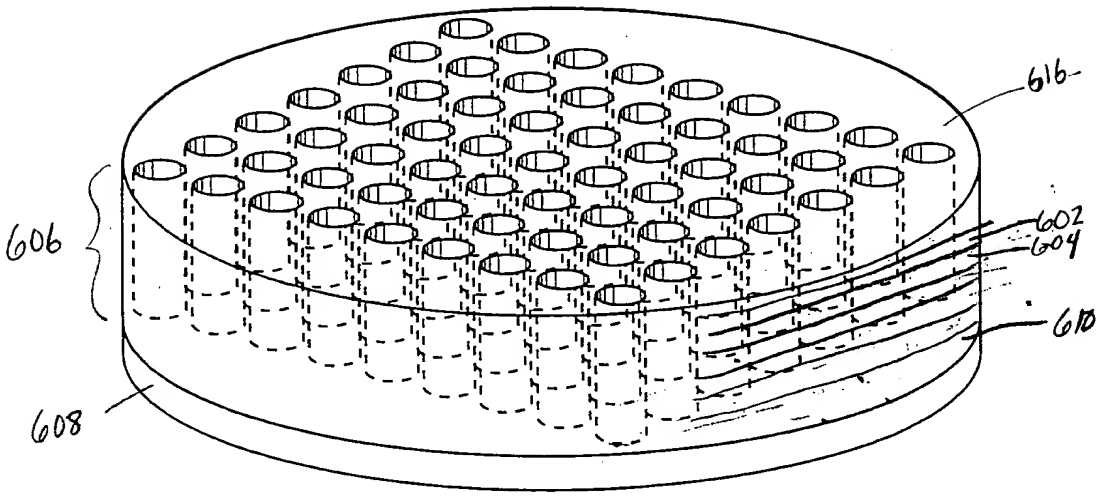

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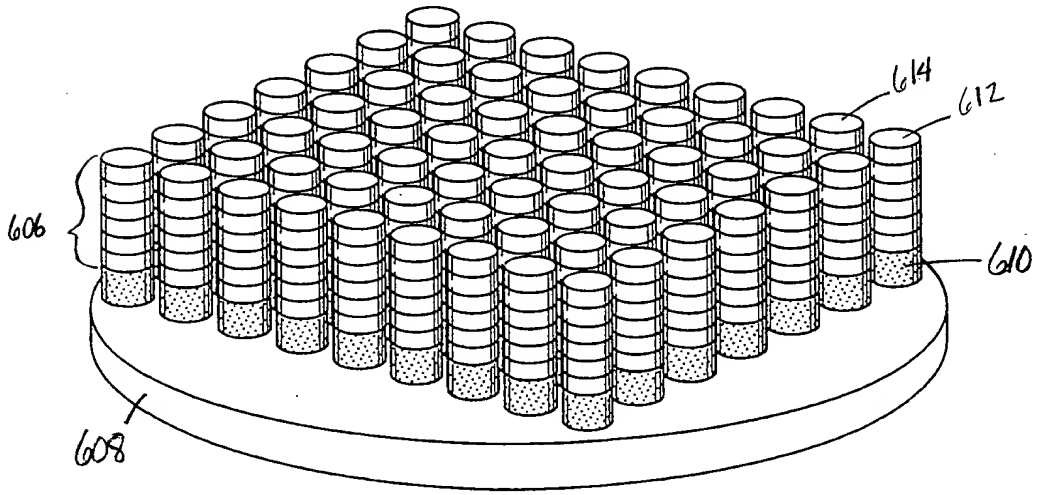

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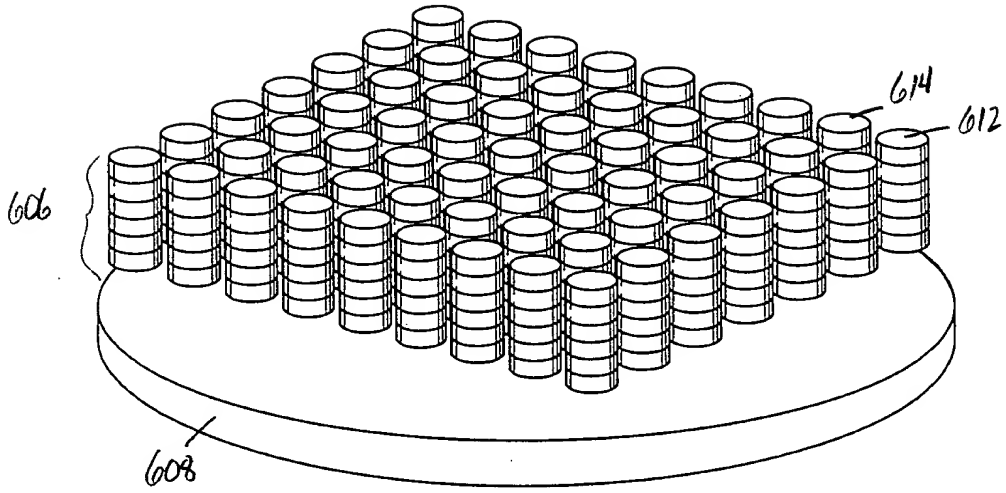

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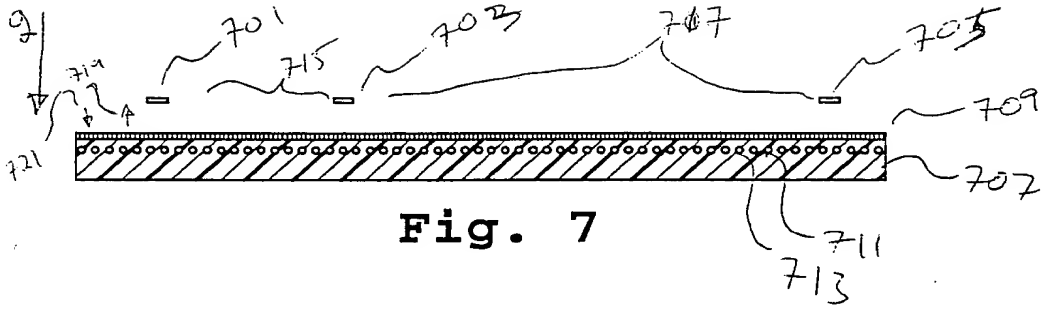

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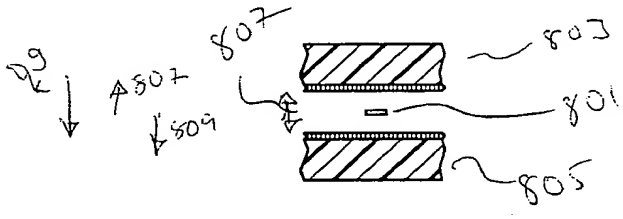

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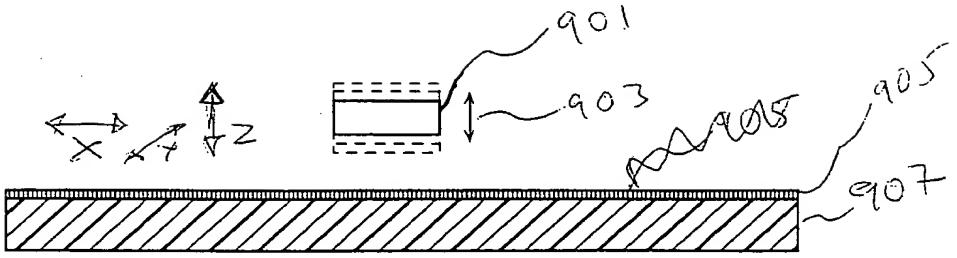

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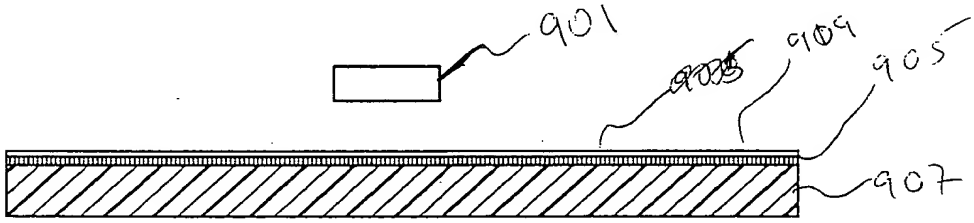

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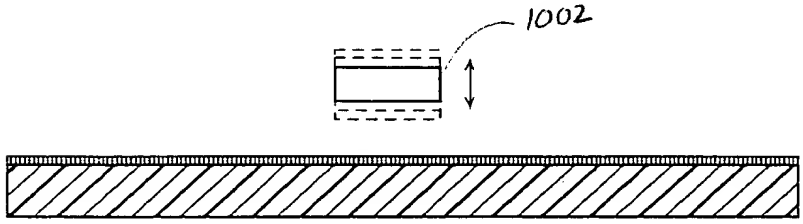

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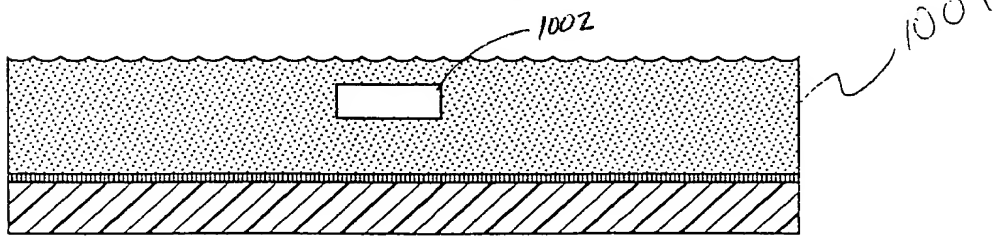


Fig. 10B

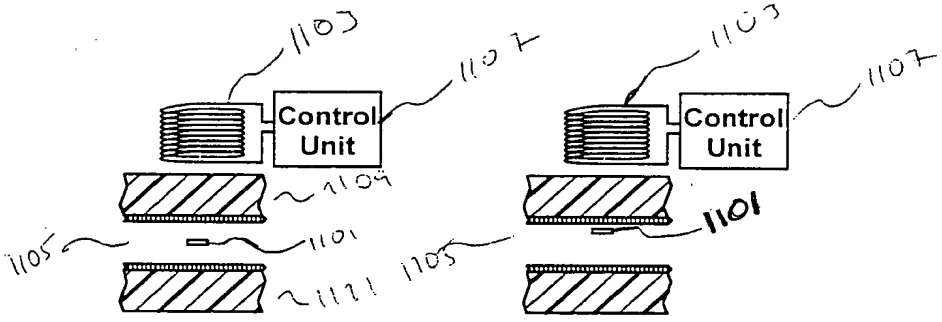
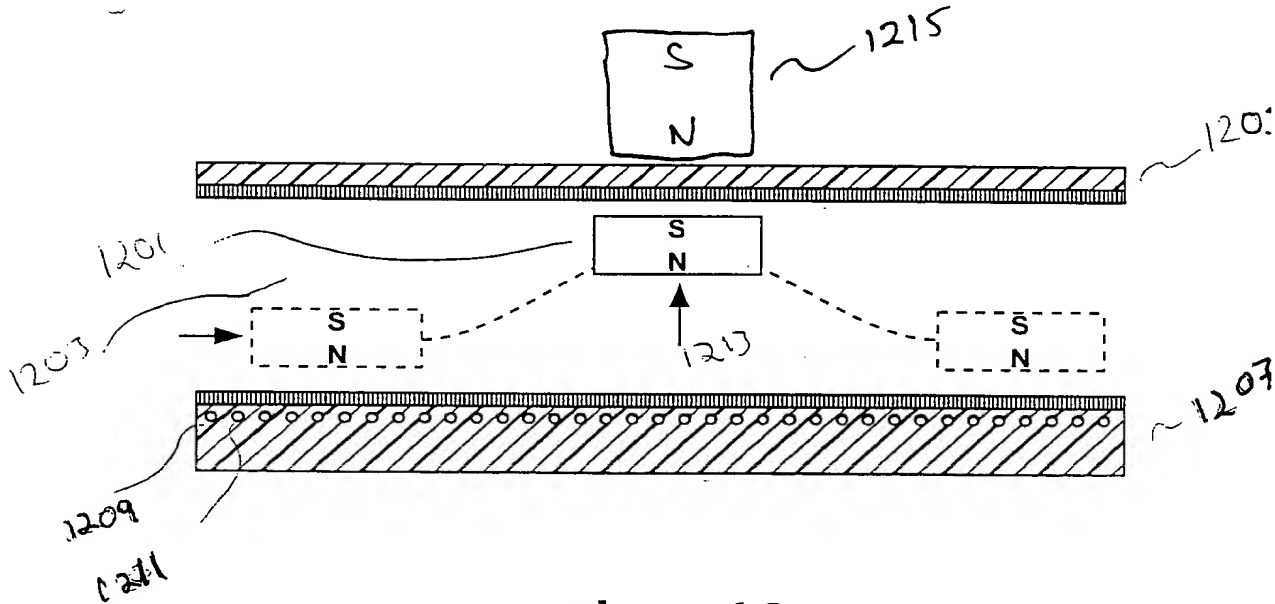


Fig. 11A Fig. 11B



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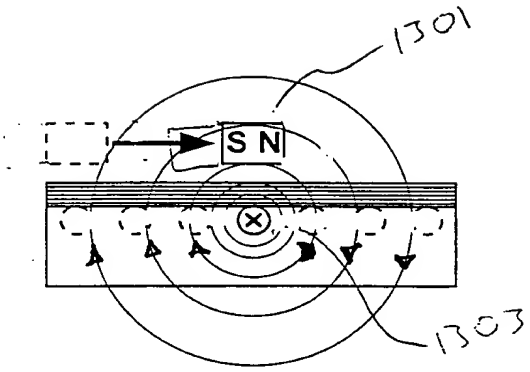

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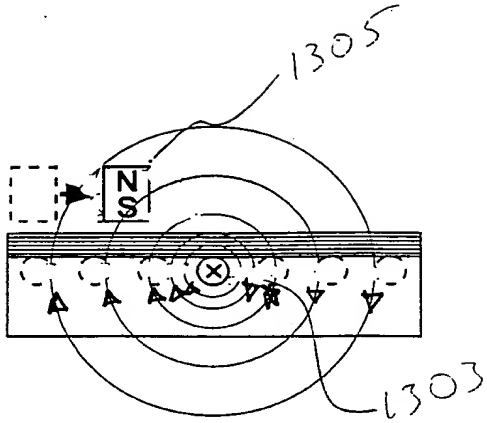

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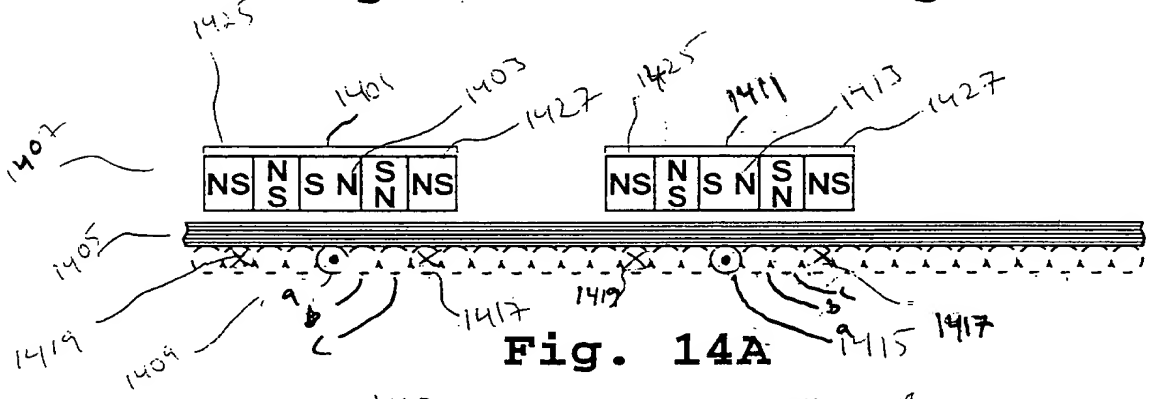

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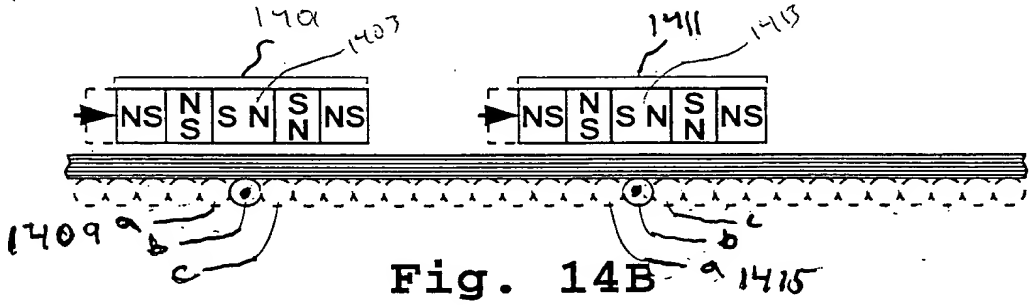

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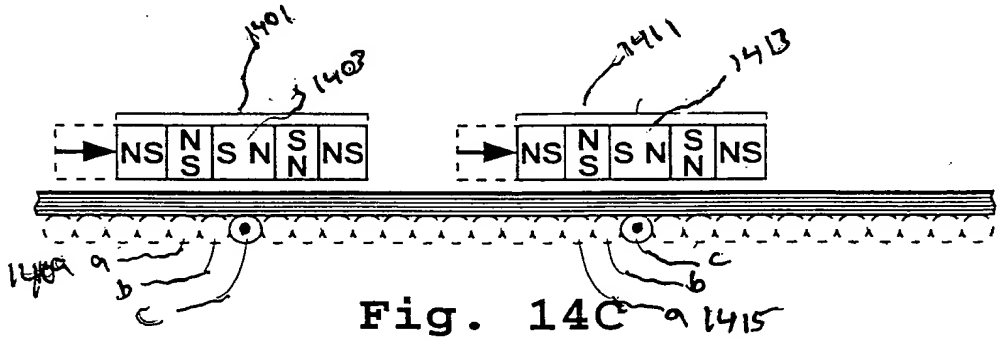

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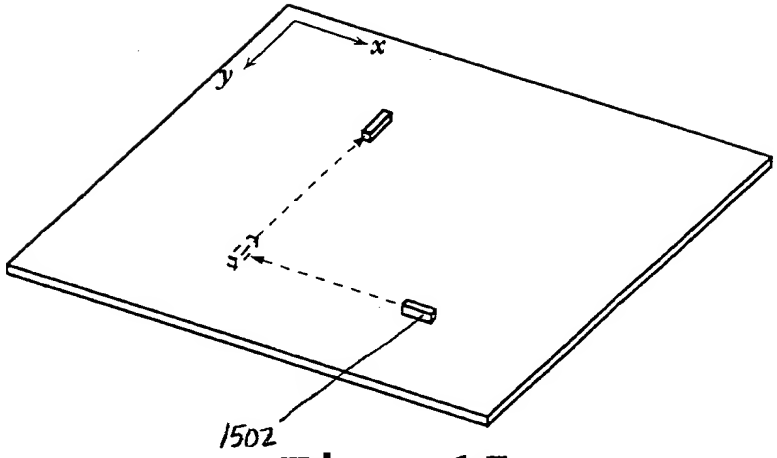
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y
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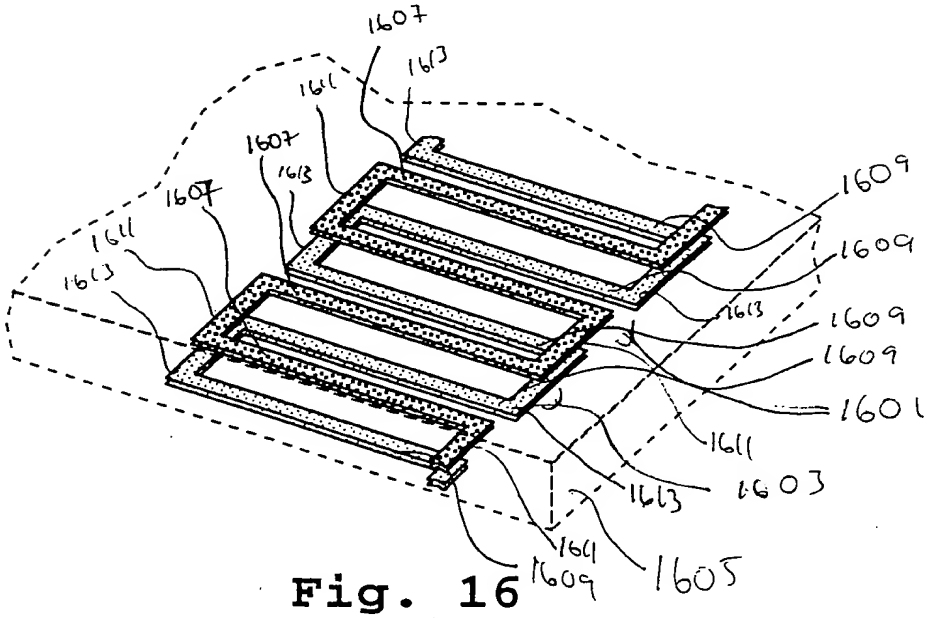
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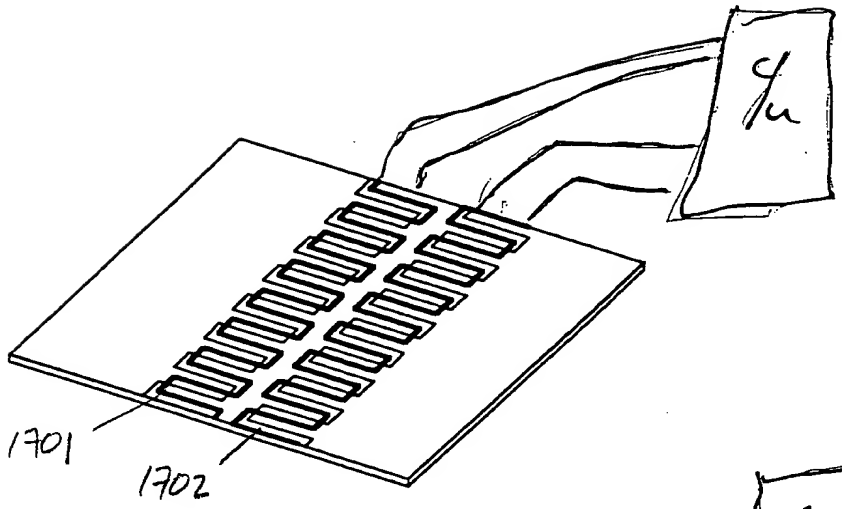
Fig. 16



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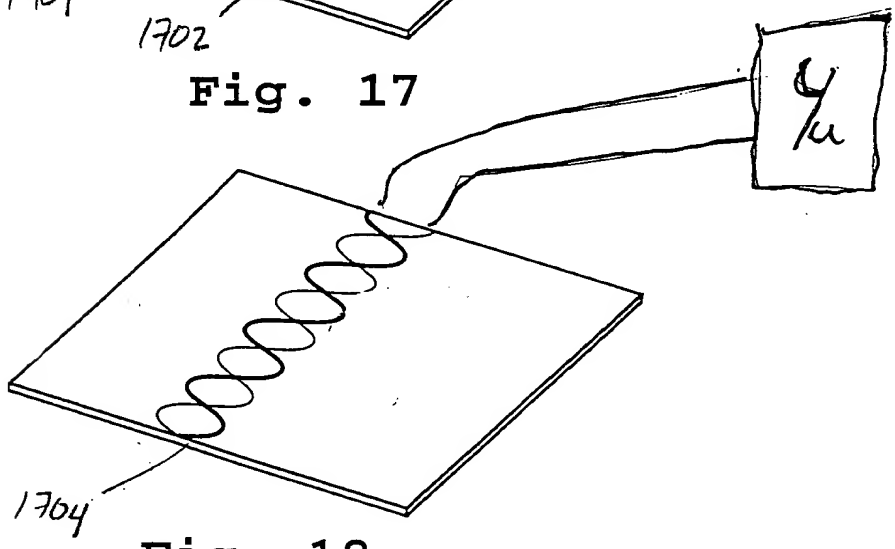

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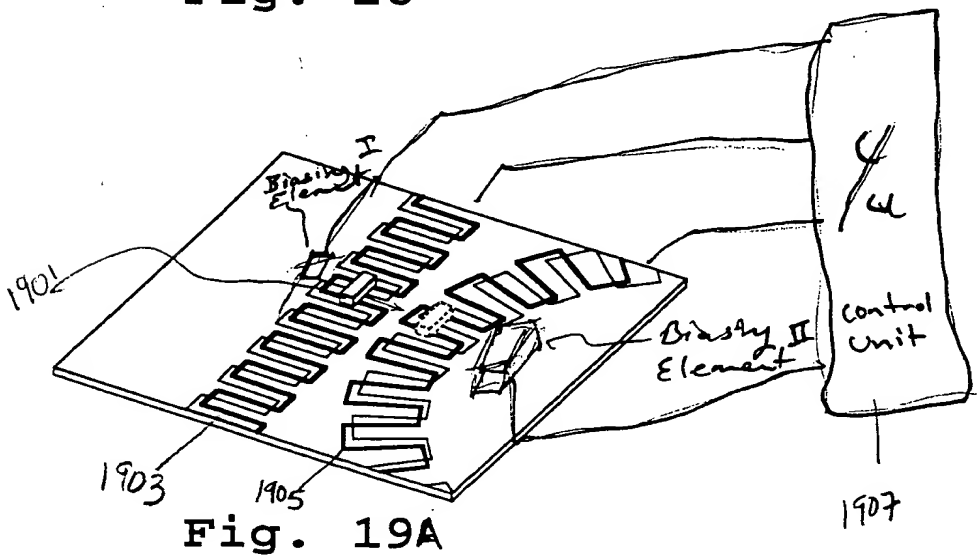

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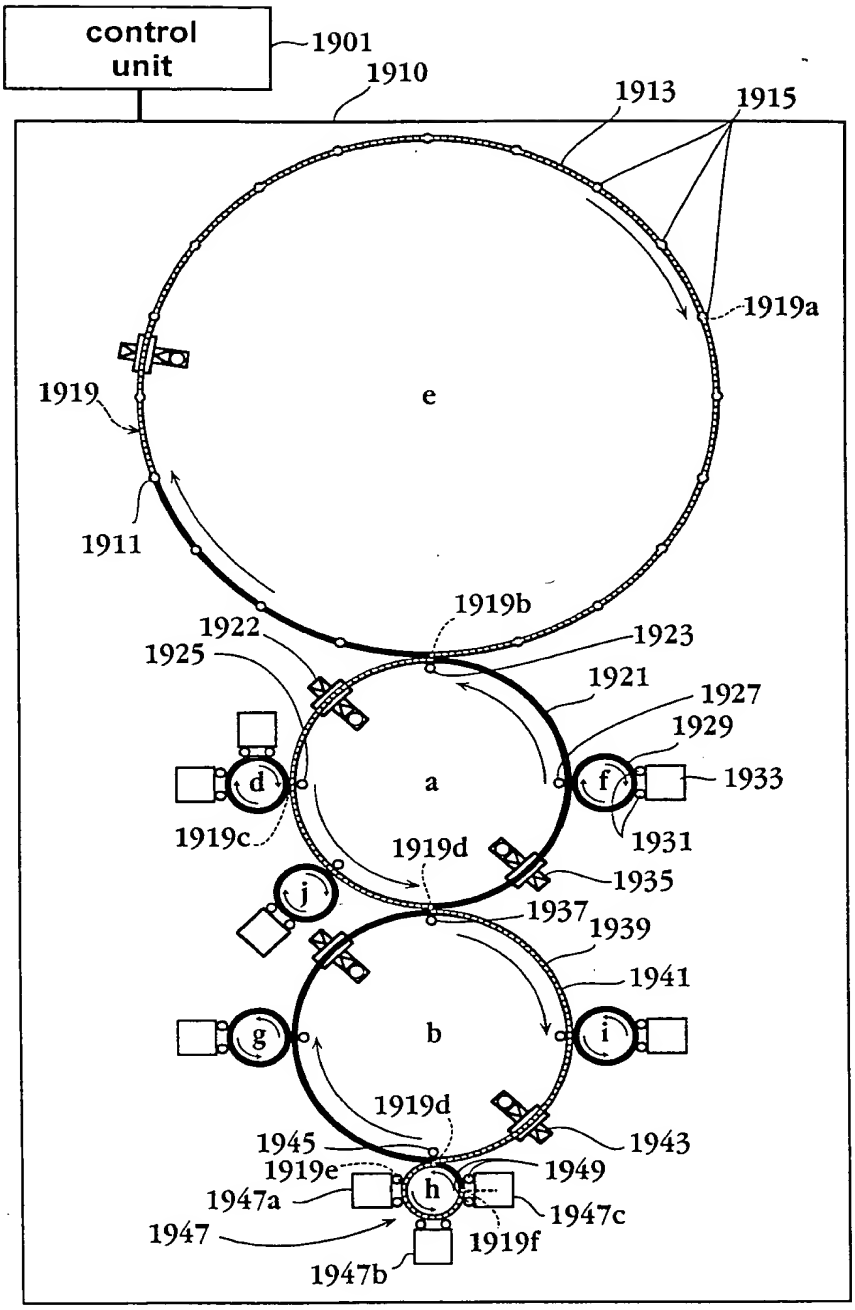
control unit
1901
1910
1913
1915
1919a
1919
e
1911
1919b
1922
1923
1925
1921
1927
1929
d
a
f
1933
1919c
1931
1919d
1935
j
1937
1939
1941
g
b
i
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1943
1919e
1949
h
1947a
1947c
1947
1919f
1947b

Fig. 19B

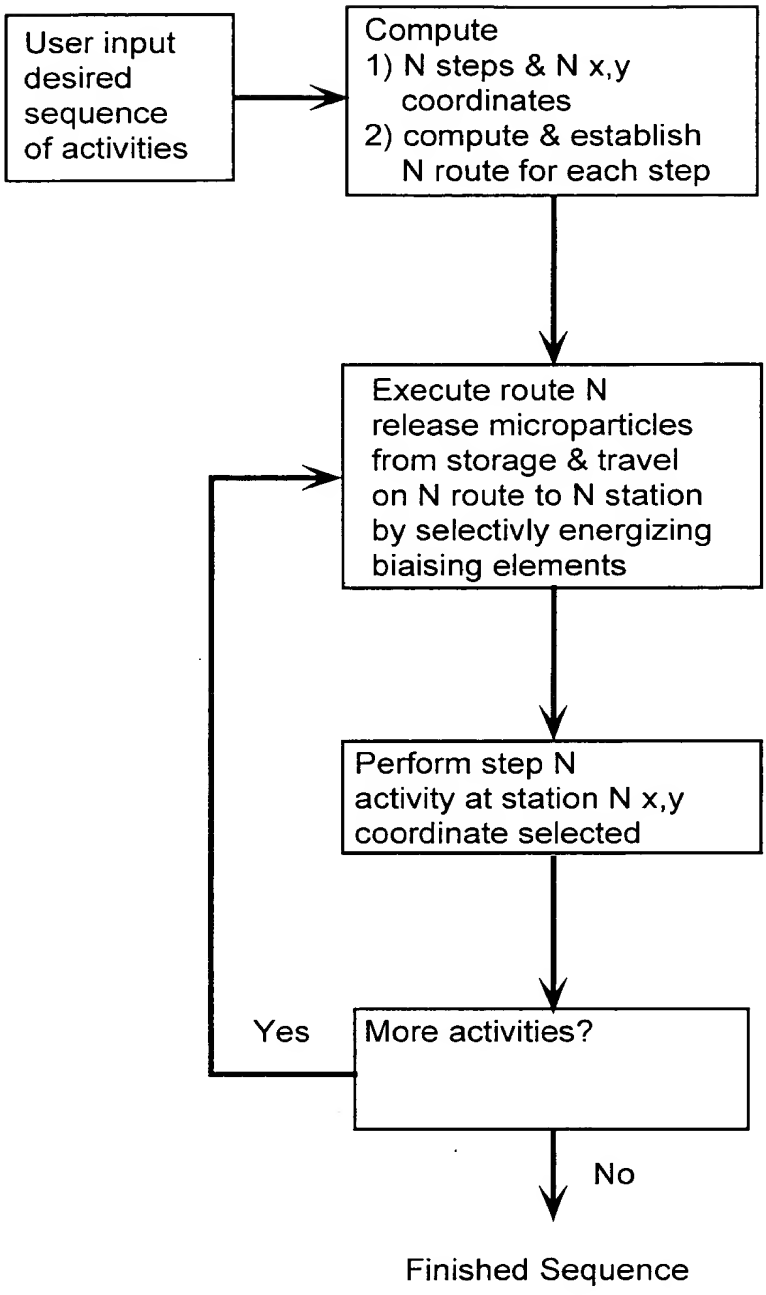
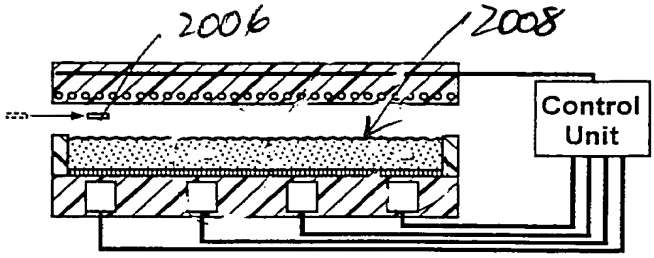

User input desired sequence of activities
Compute
1) N steps & N x,y coordinates
2) compute & establish N route for each step
Execute route N release microparticles from storage & travel on N route to N station by selectivly energizing biaising elements
Perform step N activity at station N x,y coordinate selected
Yes
More activities?
No
Finished Sequence

Fig. 19C



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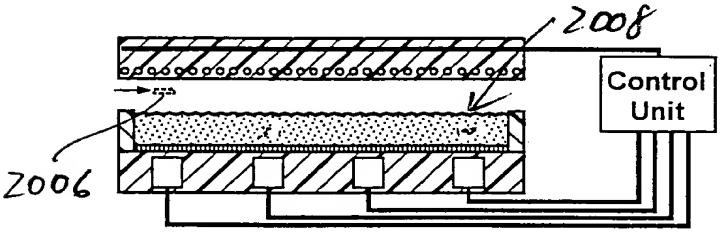


Fig. 21B

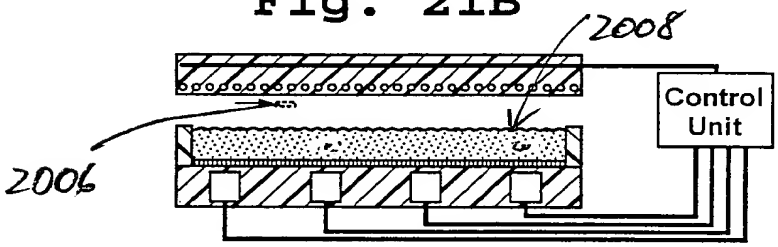
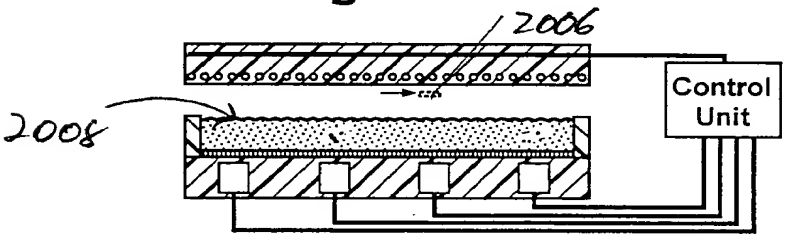


Fig. 21C



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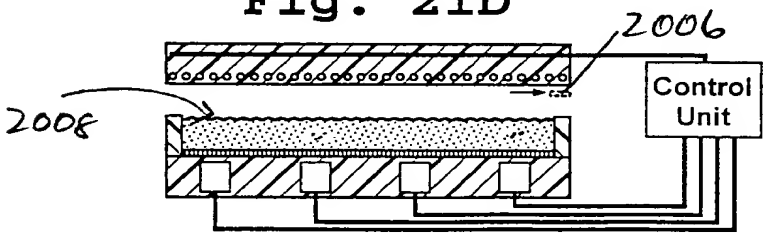

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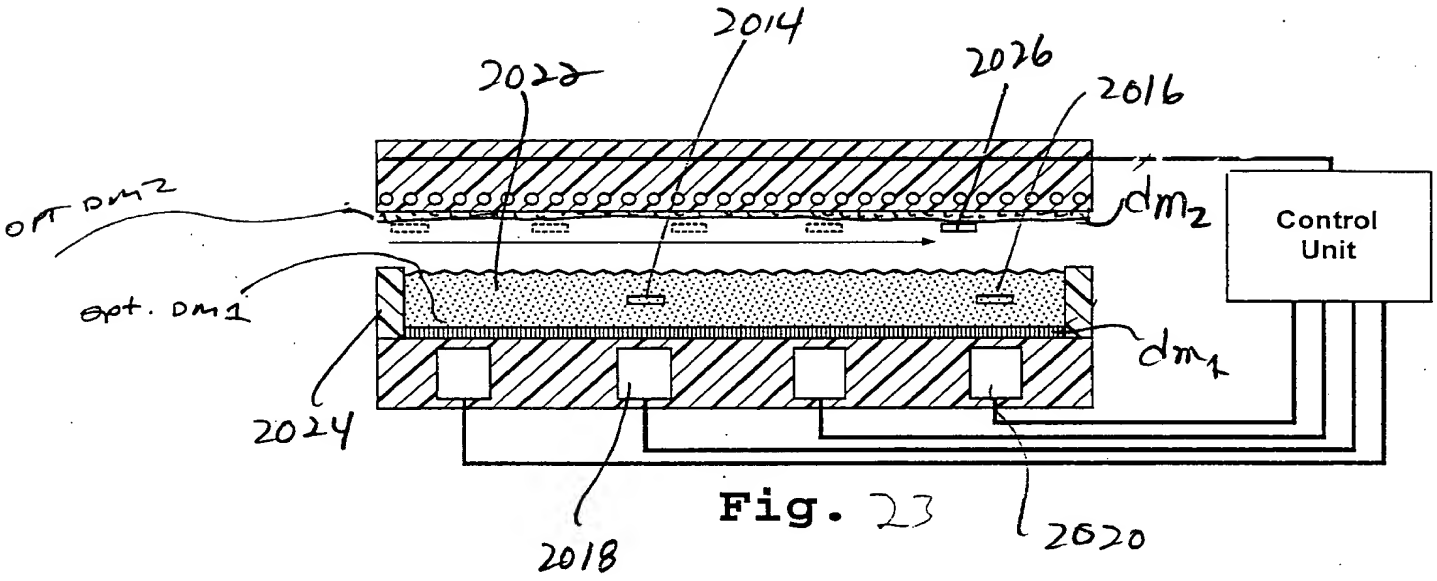
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2026
2016
opt. dm2
dm2
Control Unit
opt. dm1
dm1
2024
2018
2020

Fig. 23

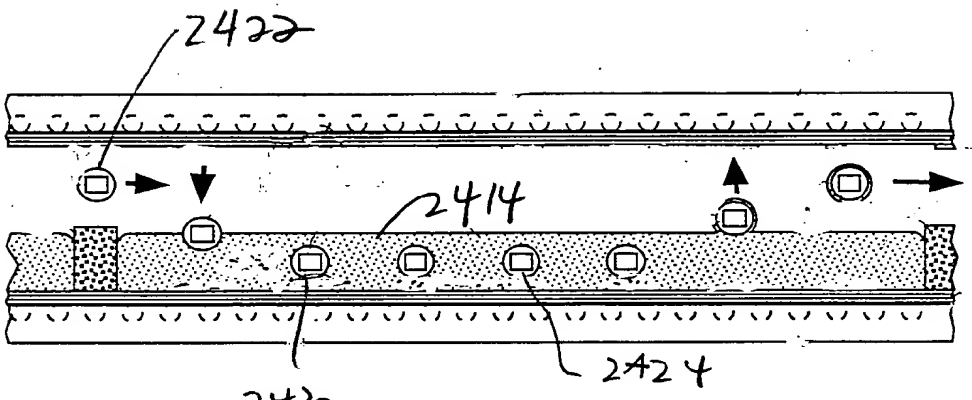
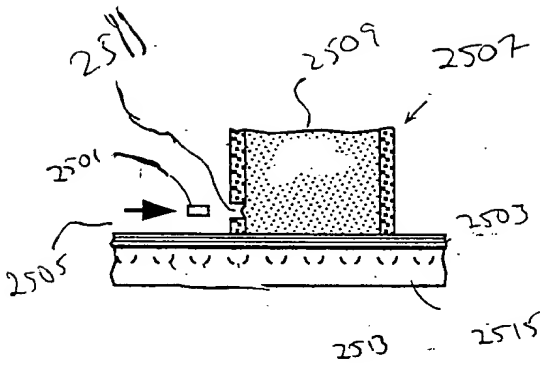


Fig. 24



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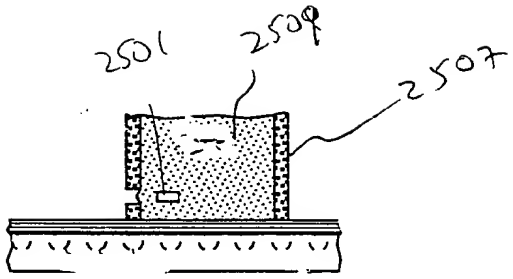


Fig. 25B

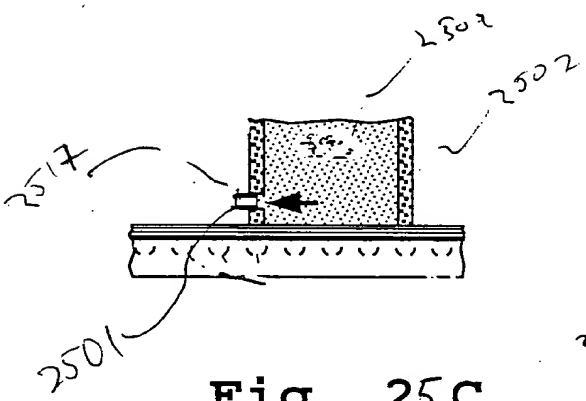


Fig. 25C

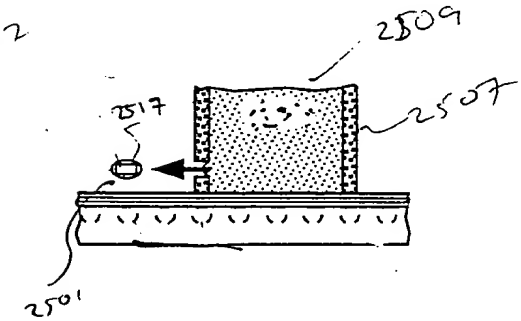
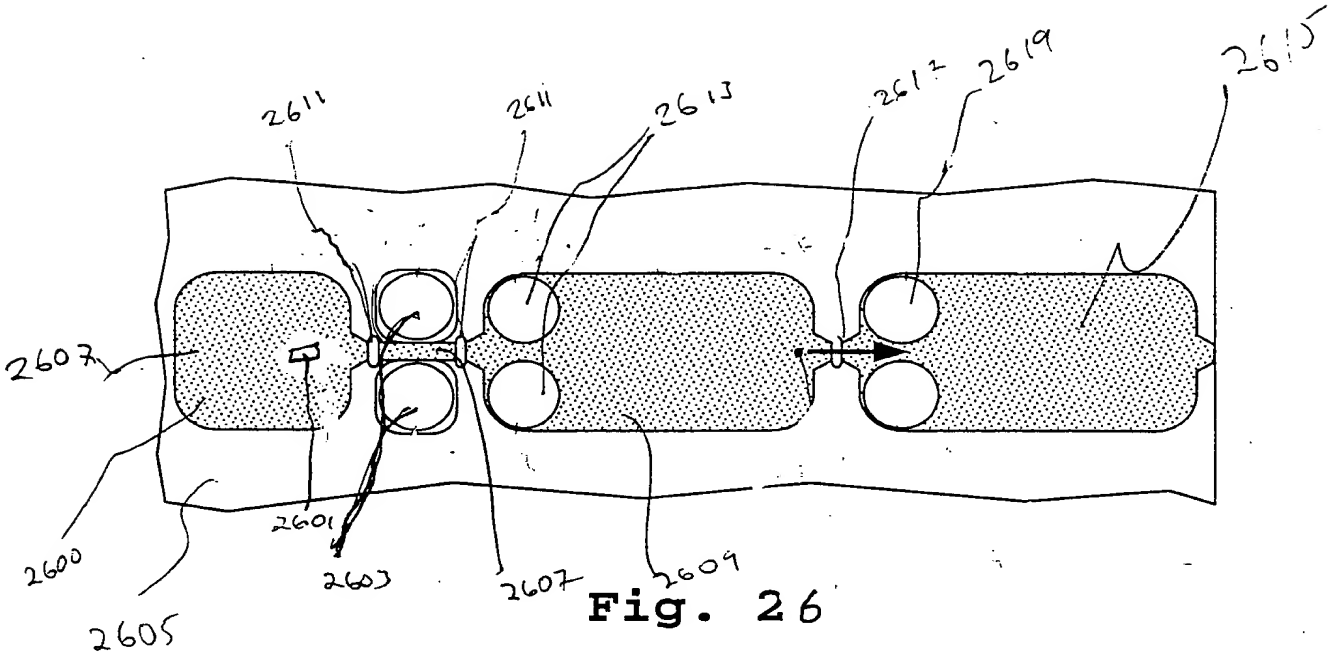


Fig. 25D



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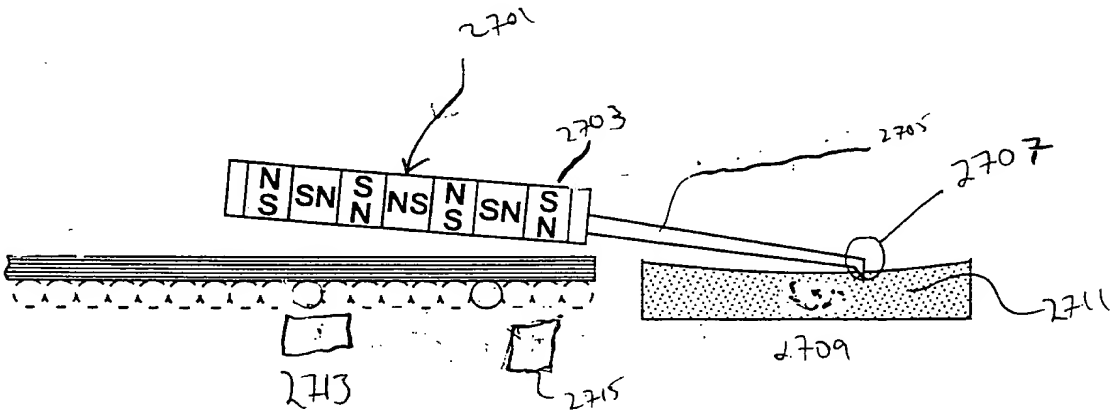
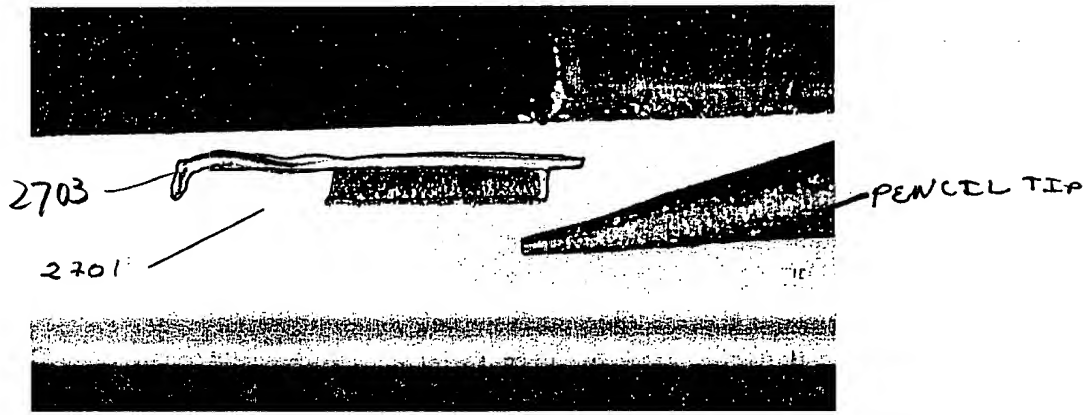


Fig. 27A

POSTED 07/07/2006



27B

POSTED 6T60T860

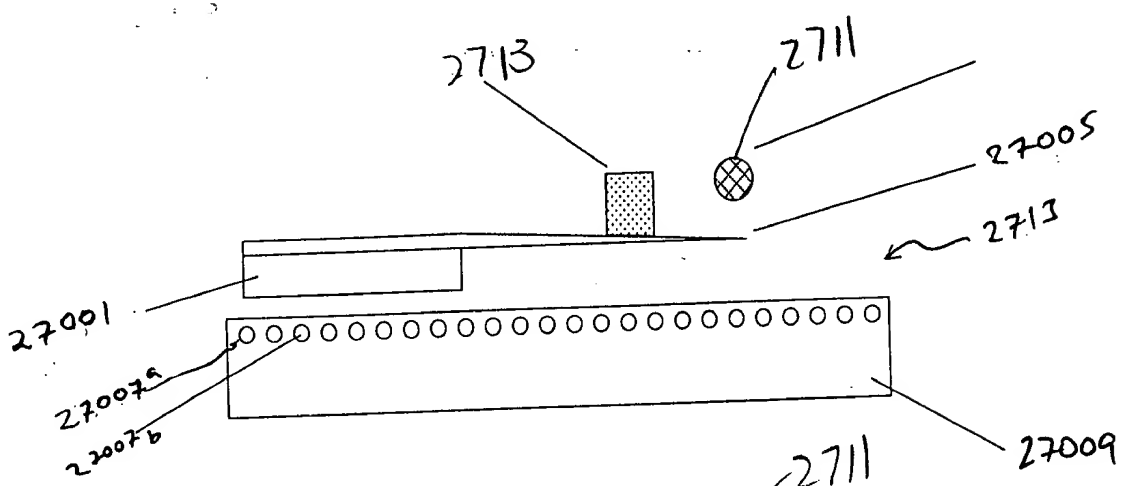


Figure 27C

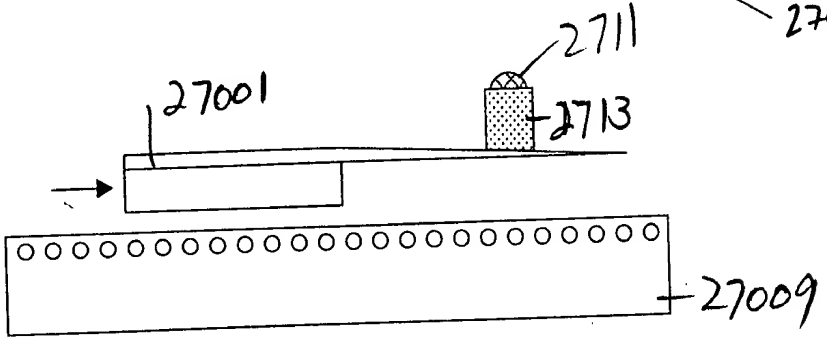


Figure 27D

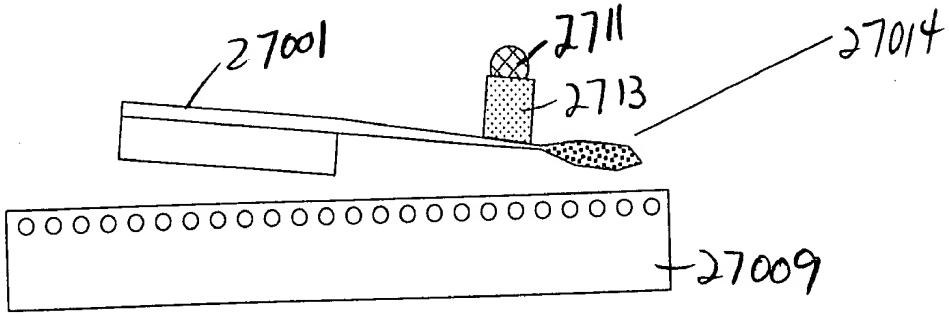


Figure 27E

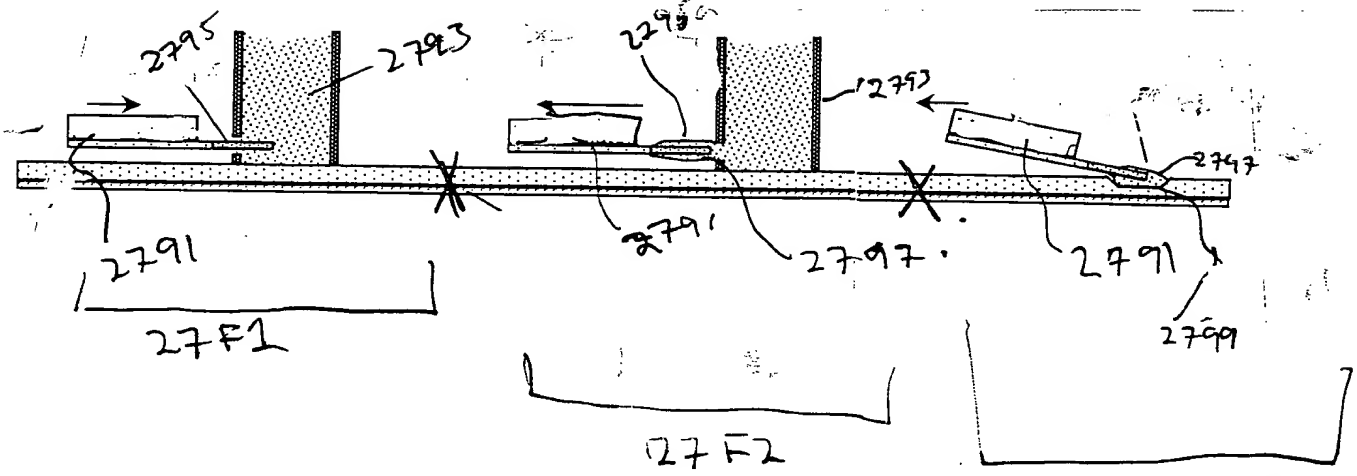


Fig 27F

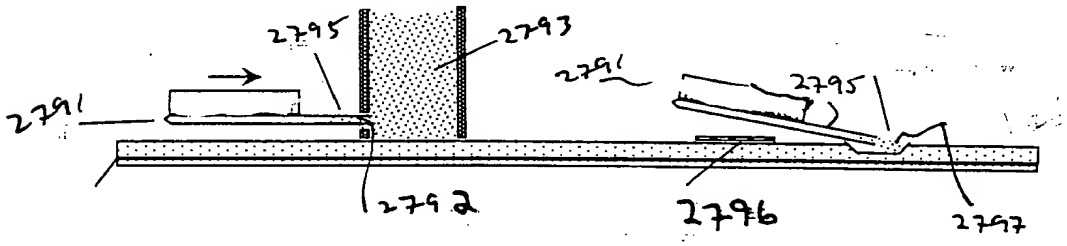


Fig 27G

POSTED 6/6/2006

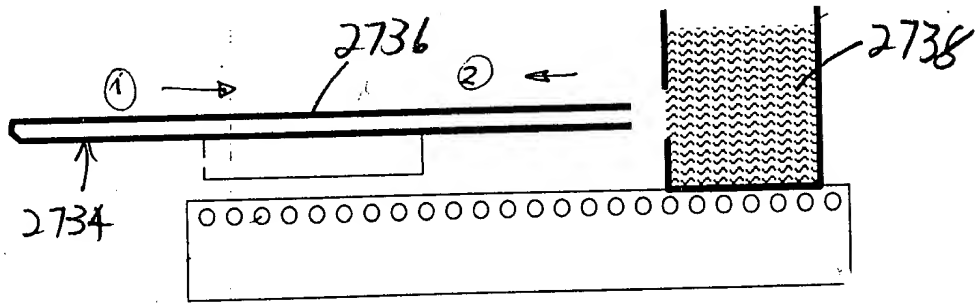


Figure 27H

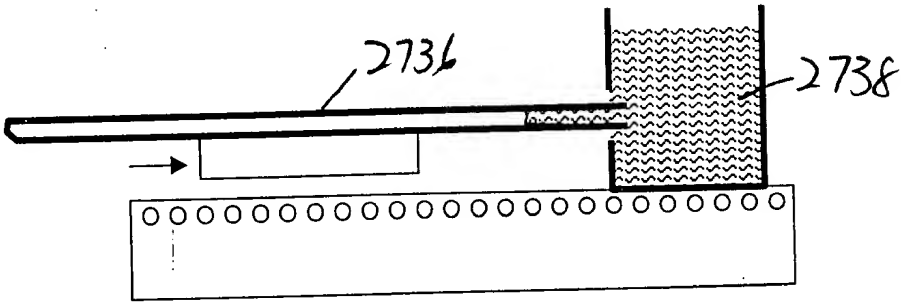


Figure 27I

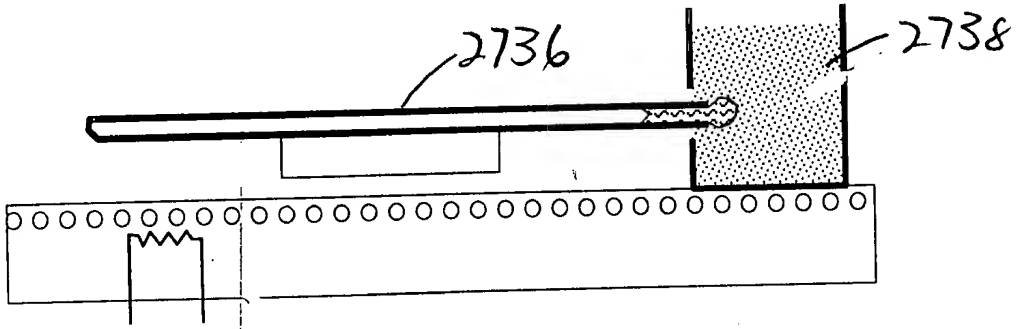


Figure 27J

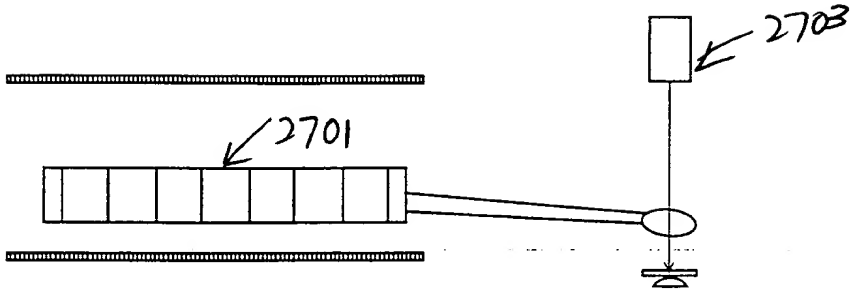


Fig. 28A

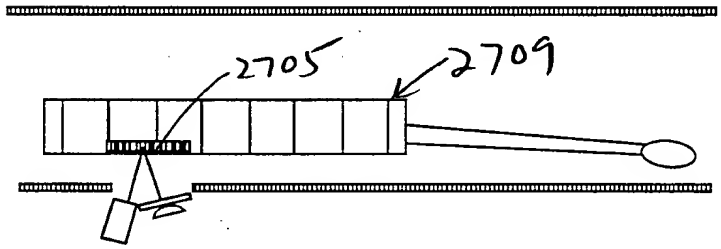


Fig. 28B

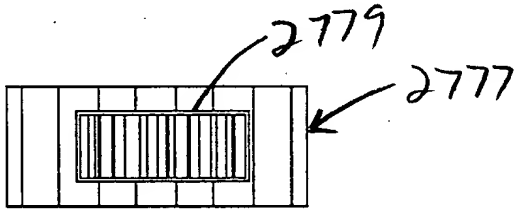


Fig. 29A

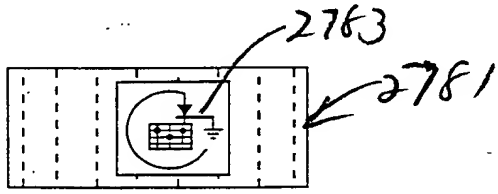


Fig. 29B

Replaced by Art Unit 2865

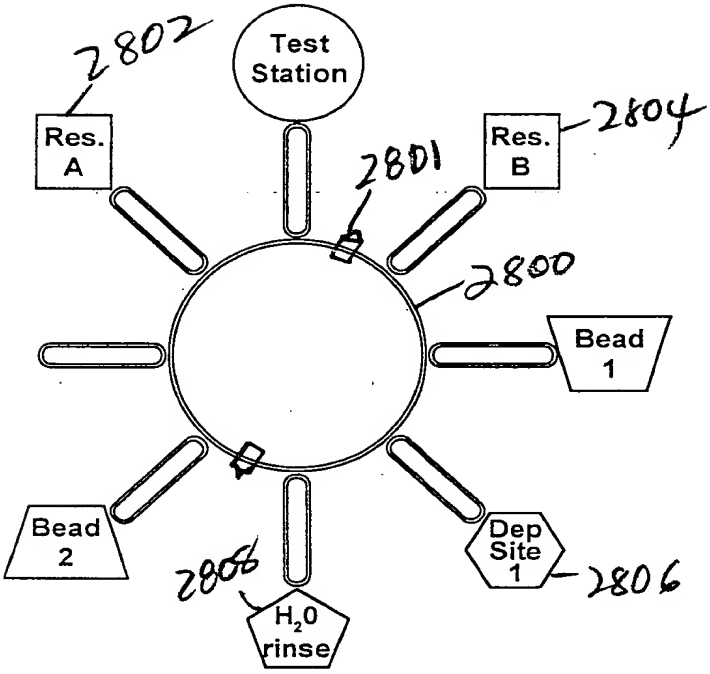


Fig. 30A

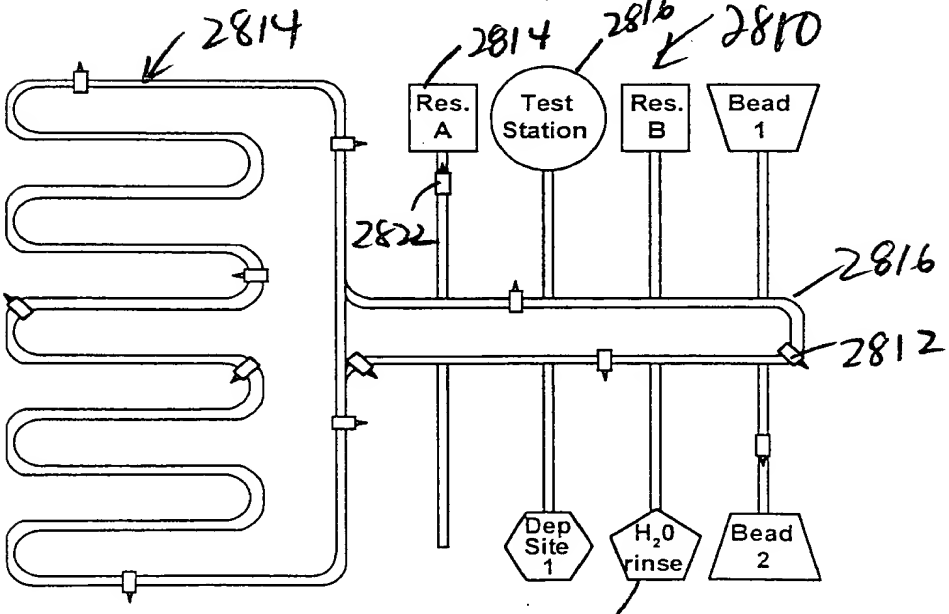


Fig. 30 B

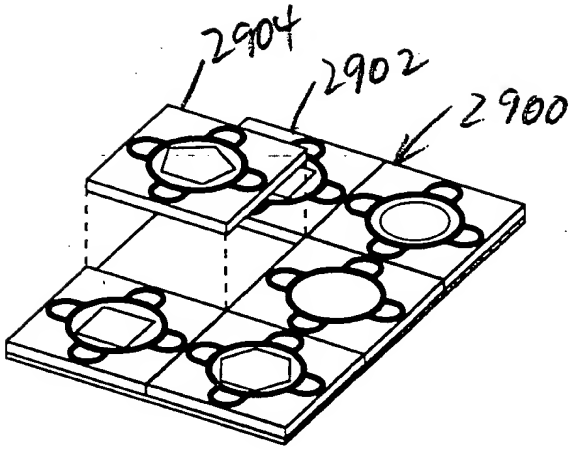


Fig. 31A

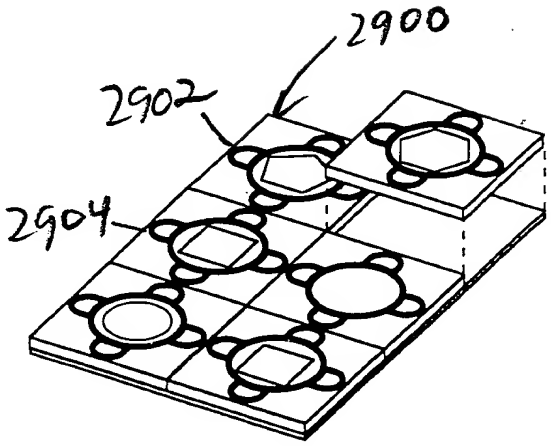


Fig. 31B

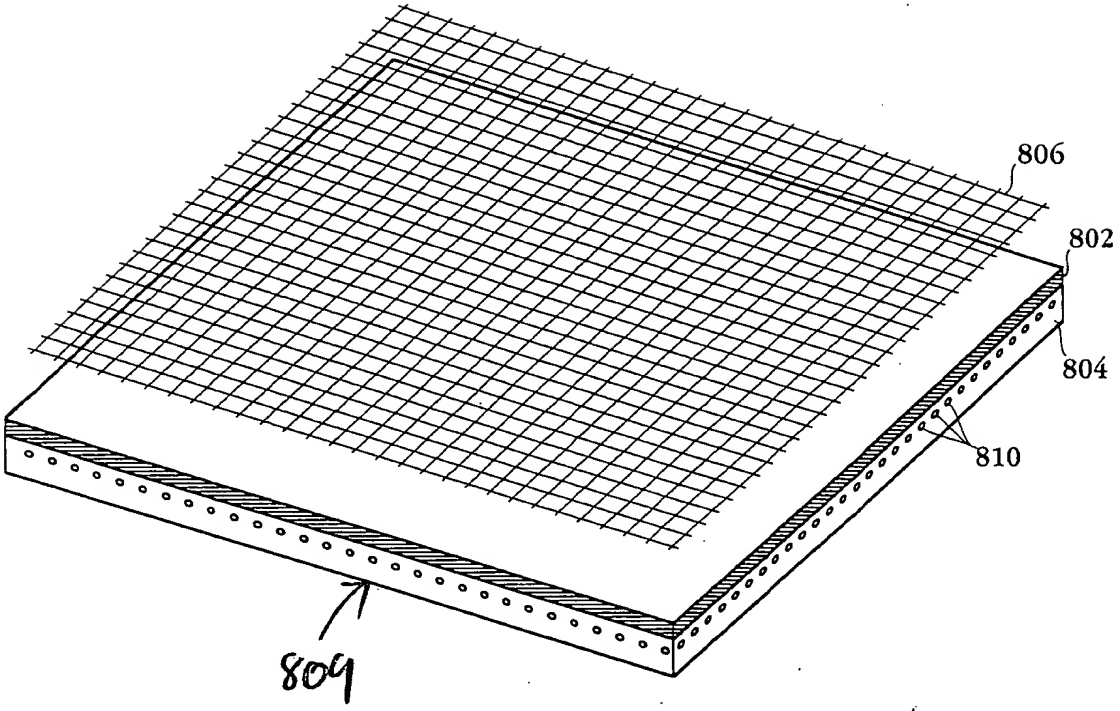


Fig. 32A

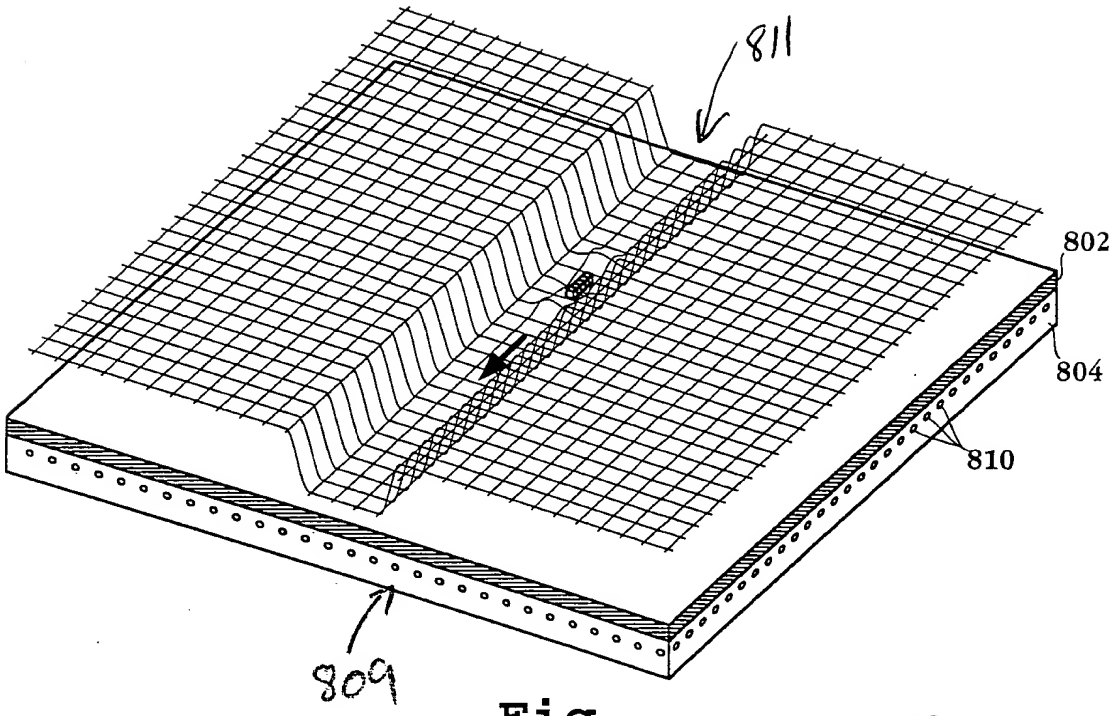


Fig. 32B

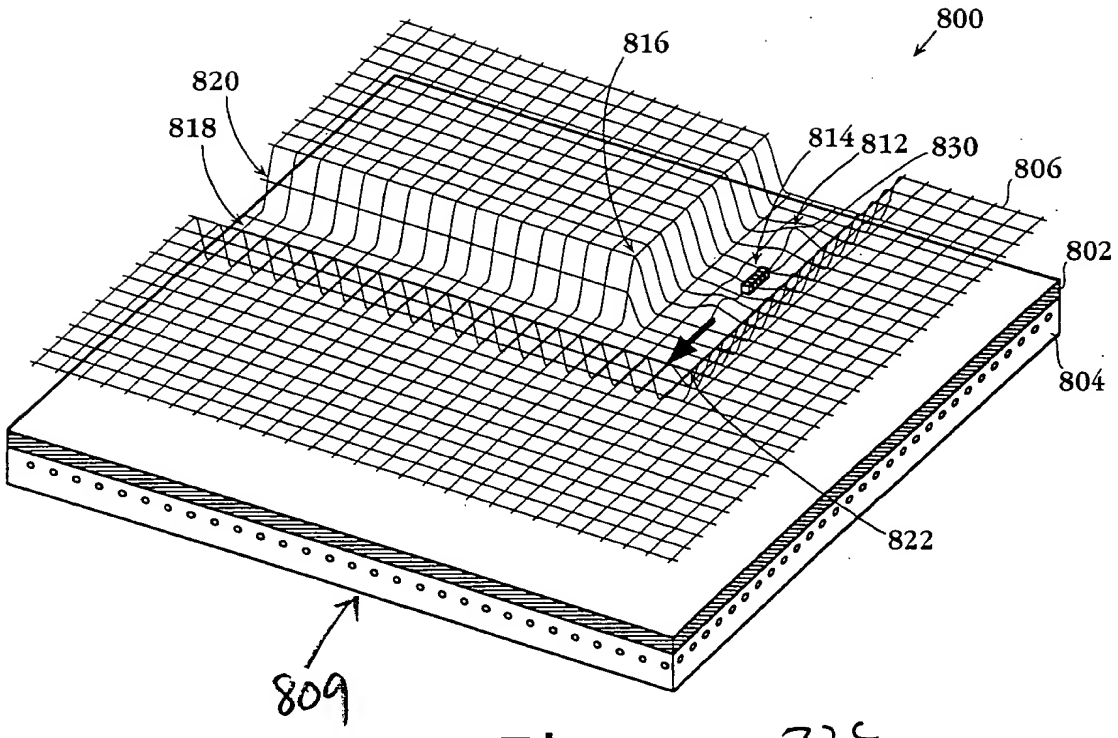


Fig. 32c

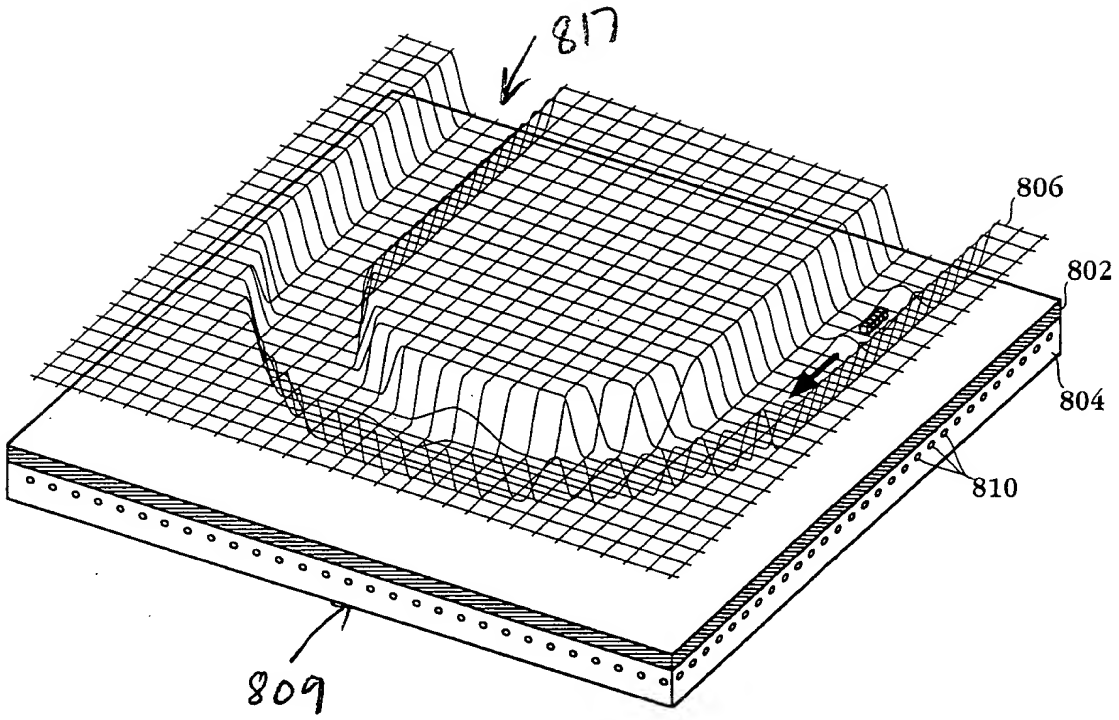


Fig. 32D

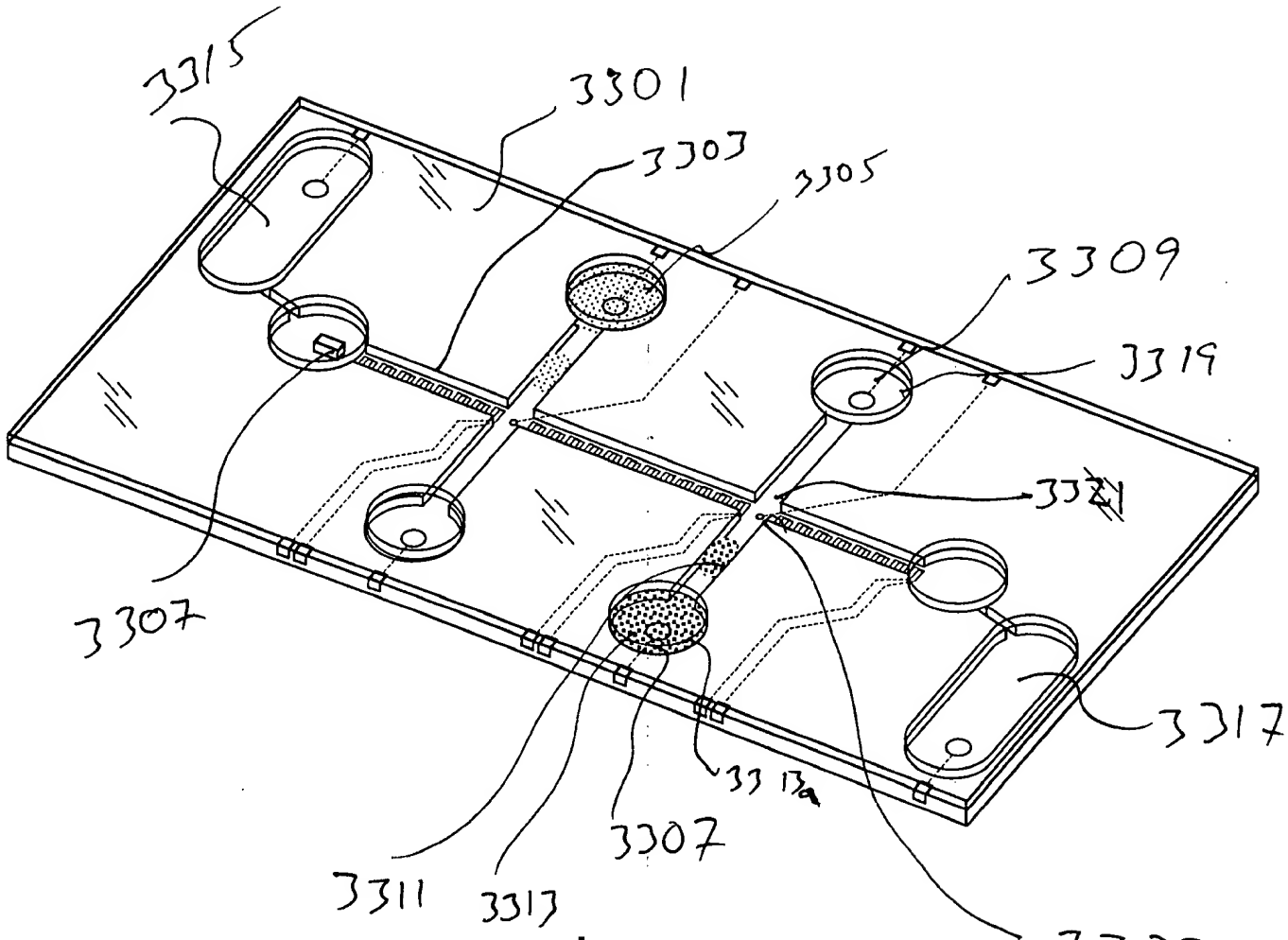

3315
3301
3303
3305
3309
3319
3321
3307
3317
3313a
3307
3311
3313
3323

Fig. 33

FOSTER GTGGT360

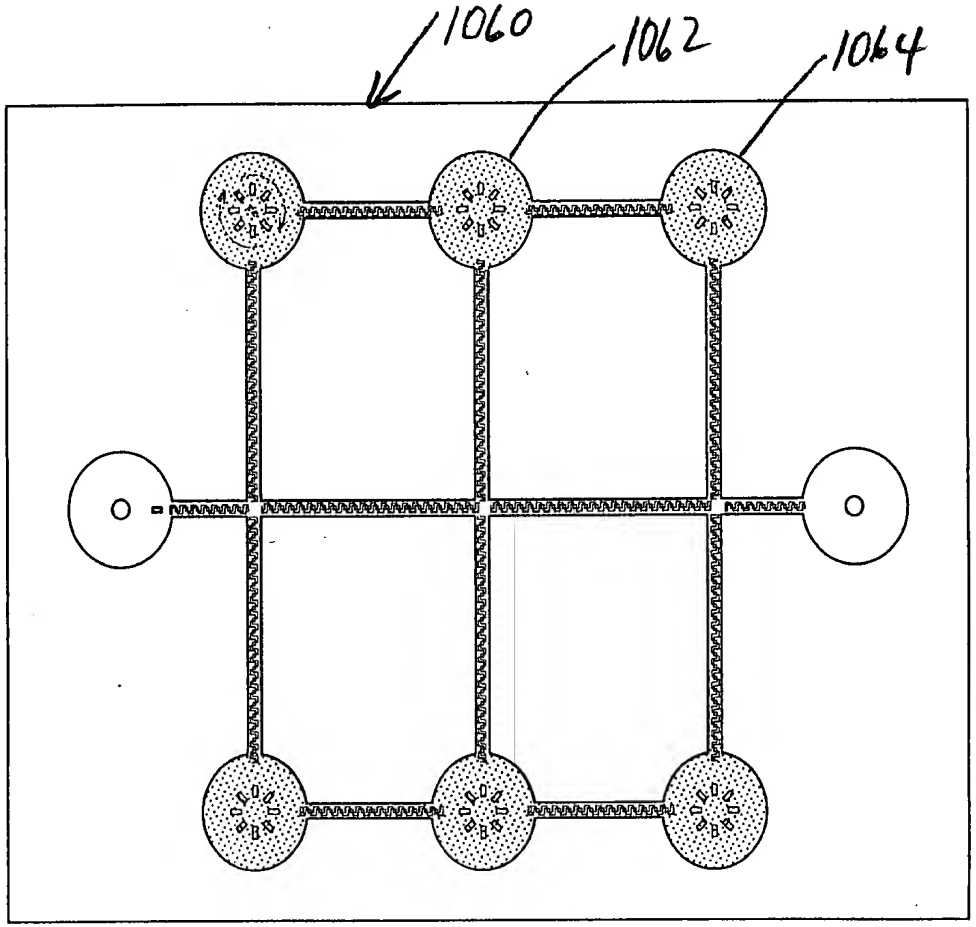


Fig. 34

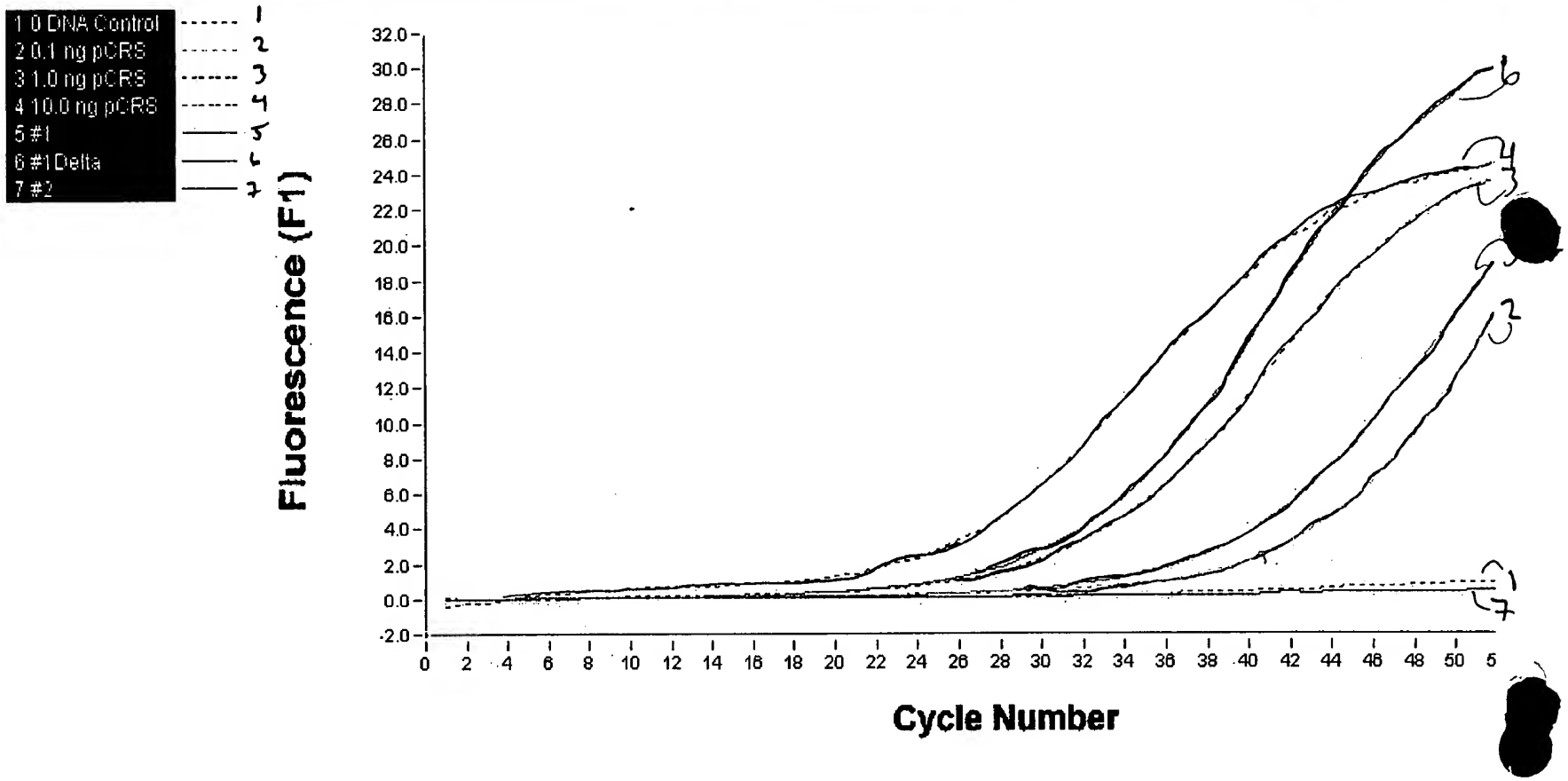
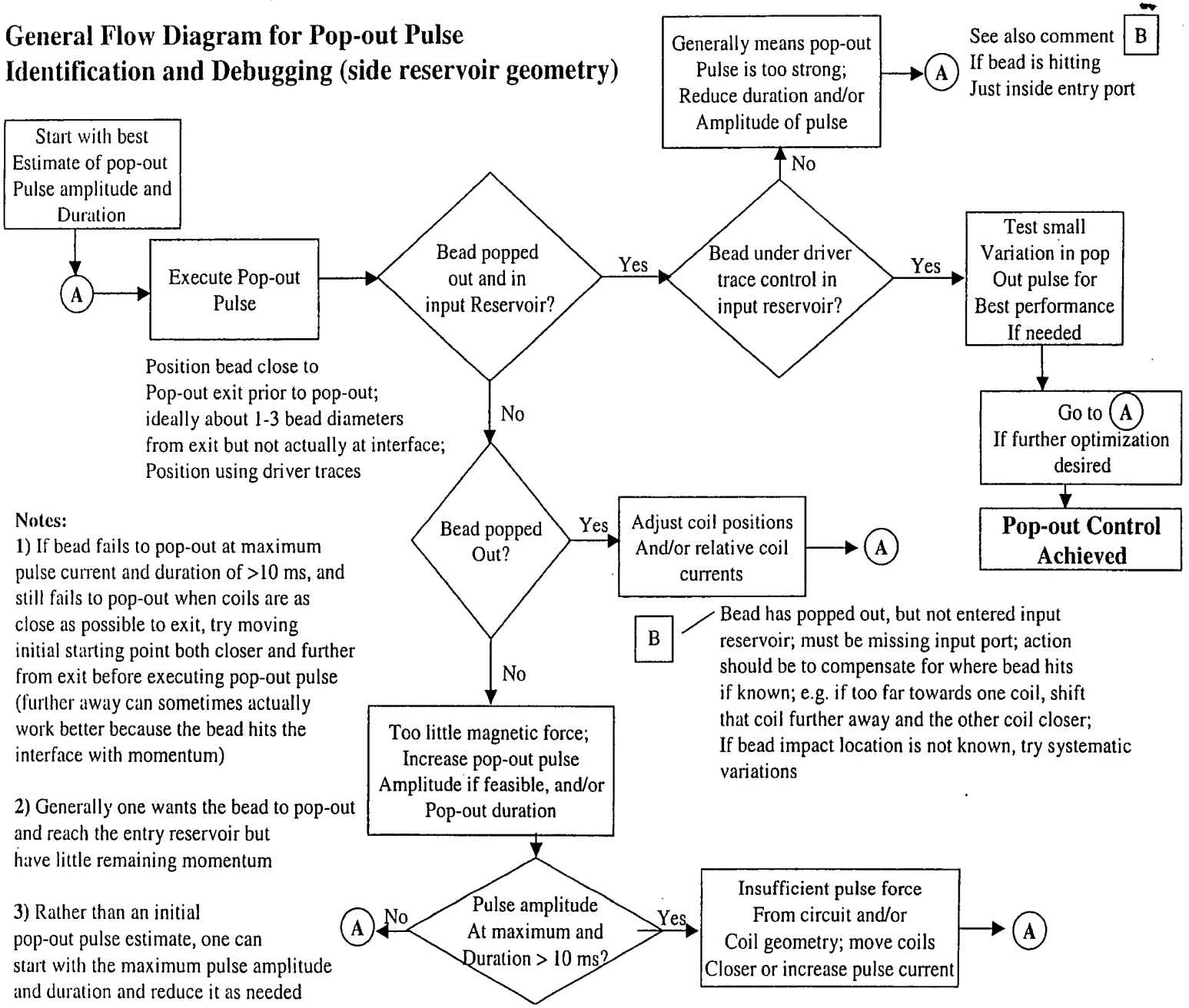

1 0 DNA Control
2 0.1 ng pCRS
3 1.0 ng pCRS
4 10.0 ng pCRS
5 #1
6 #1 Delta
7 #2
Fluorescence (F1)
32.0
30.0
28.0
26.0
24.0
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
-2.0
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
Cycle Number

Fig. 35

Fig. 36

General Flow Diagram for Pop-out Pulse Identification and Debugging (side reservoir geometry)



Notes:

1) If bead fails to pop-out at maximum pulse current and duration of >10 ms, and still fails to pop-out when coils are as close as possible to exit, try moving initial starting point both closer and further from exit before executing pop-out pulse (further away can sometimes actually work better because the bead hits the interface with momentum)

2) Generally one wants the bead to pop-out and reach the entry reservoir but have little remaining momentum

3) Rather than an initial pop-out pulse estimate, one can start with the maximum pulse amplitude and duration and reduce it as needed